WHAT IS CLAIMED IS:

1. An image processing apparatus, comprising:

reduction calculation means for reducing the number of a plurality of input image data, corresponding to a plurality of images that satisfy azimuth difference relations each other, in a lateral direction, respectively;

three-dimensional processing means for combining the image data that have been reduced the number by the reduction calculation means so as to prepare a three-dimensional image data; and

switching means for switching and selecting which one of three-dimensional image data prepared by the three-dimensional processing means and two-dimensional image data prepared by using one of the plurality of input image data should be outputted.

2. The image processing apparatus as set forth in claim 1, wherein said reduction calculation means are provided as many as the input image data.

3. The image processing apparatus as set forth in claim 2, further comprising:

first selectors, each for selecting and outputting either one of the input image data to be supplied to said reduction calculation means and the reduced image data

from the reduction calculation means, said first selectors being provided in association with and as many as said reduction calculation means, and provided between said reduction calculation means and said three-dimensional processing means; and

a second selector, provided at respective subsequent stages of said first selectors and said three-dimensional processing means, for selecting and outputting either one of the three-dimensional image data from said three-dimensional processing means and the input image data from said respective first selectors,

said switching means controlling how the first and second selectors should select.

4. The image processing apparatus as set forth in claim 1, wherein said reduction calculation means temporally switches the plurality of input image data and reduces the number of the input image data thus switched, respectively, so as to output the respective reduced image data in a time-sharing manner.

5. The image processing apparatus as set forth in claim 4, further comprising:

a third selector, provided between said reduction calculation means and said three-dimensional processing

means, for selecting and outputting either one of the input image data to be supplied to said reduction calculation means and the reduced image data from said reduction calculation means ; and

a fourth selector, provided so as to be followed by said reduction calculation means and by said third selector, for sequentially switching the plurality of input image data, and for outputting the input image data thus switched to said reduction calculation means and said third selector, respectively, and

a fifth selector, provided at respective subsequent stages of said third selector and said three-dimensional processing means, for selecting and outputting either one of the three-dimensional image data from said three-dimensional processing means and the input image data from said third selector,

said switching means controlling how the third through fifth selectors should select.

6. The image processing apparatus as set forth in claim 4, further comprising:

a frame memory in which said three-dimensional processing means stores image data so as to combine the reduced image data.

7. The image processing apparatus as set forth in claim 1, wherein said reduction calculation means carries out a thinning with respect to the input image data so as to reduce the number of the input image data.

8. The image processing apparatus as set forth in claim 1, wherein the number of the input image data is n (n: integer of not less than 2), and

said three-dimensional processing means combines the reduced image data corresponding to m (m: integer of not less than 2 but less than n) input image data among the n input image data so as to prepare the three-dimensional image data.

9. An image pickup system, comprising:

an image processing apparatus as set forth in claim 1; and

pickup means for picking up the plurality of images that satisfy azimuth difference relations each other so as to obtain the plurality of input image data, and for supplying said image processing apparatus with the plurality of input image data.

10. An image display system, comprising:

an image processing apparatus as set forth in

claim 1; and

display means for carrying out three-dimensional image display and two-dimensional image display in response to the three-dimensional image data and the two-dimensional image data that are outputted from said image processing apparatus, respectively.

11. The image display system as set forth in claim 10, wherein said display means is a three-dimensional image display apparatus of parallax barrier type

12. The image display system as set forth in claim 10, wherein said display means is a three-dimensional image display apparatus of lenticular lens type

13. An image pickup display system, comprising:

an image processing apparatus as set forth in claim 1;

pickup means for picking up the plurality of images that satisfy azimuth difference relations each other so as to obtain the plurality of input image data, and for supplying said image processing apparatus with the plurality of input image data; and

display means for carrying out three-dimensional image display and two-dimensional image display in

response to the three-dimensional image data and the two-dimensional image data that are outputted from said image processing apparatus, respectively.

14. The image pickup display system as set forth in claim 13, wherein:

the number of the input image data that are supplied to said pickup means is n (n: integer of not less than 2),

said display means can carry out the three-dimensional image display of n-eye type that has a resolution of (transversal w-line x longitudinal h-line), where each of w and h is a positive integer, and

said pickup means has a higher resolution than a resolution of (transversal w/n-line x longitudinal h-line).

15. The image pickup display system as set forth in claim 14, wherein said pickup means has different resolutions for the respective input image data.

16. An image processing program causing said image processing apparatus as set forth in claim 1 to operate,

said program causing a computer to function as said respective means of said image processing apparatus.

17. A computer-readable recording medium in which

the image processing program as set forth in claim 16 is recorded.

18. A sequence of data signal realized by an electronic transmission of the image processing program as set forth in claim 16.